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P0151BEN

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Has received an application for a patent for a new and useful invention. The title and description of the invention are enclosed. The requirements of law have been complied with, and it has been determined that a patent on the invention shall be granted under the law.

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Grants to the person(s) having title to this patent the right to exclude others from making, using, offering for sale, or selling the invention throughout the United States of America or importing the invention into the United States of America for the term set forth below, subject to the payment of maintenance fees as provided by law.

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J. Todd Dickinson

Acting Commissioner of Patents and Trademarks

Thomas E Hawkins

Attest

US005881717A

United States Patent [19]

Isaza

[11] Patent Number: 5,881,717

[45] Date of Patent: Mar. 16, 1999

[54] **SYSTEM AND METHOD FOR ADJUSTABLE DISCONNECTION SENSITIVITY FOR DISCONNECTION AND OCCLUSION DETECTION IN A PATIENT VENTILATOR**

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[21] Appl. No.: **818,173**

[22] Filed: **Mar. 14, 1997**

[51] **Int. Cl.**[6] **A61M 16/00**

[52] **U.S. Cl.** **128/202.22**; 128/204.21; 128/205.23

[58] **Field of Search** 128/200.24, 202.22, 128/204.21, 204.23, 205.23

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Primary Examiner—Aaron J. Lewis
Attorney, Agent, or Firm—Fulwider Patton Lee & Utecht, LLP

[57] **ABSTRACT**

The system and method for detecting disconnection and occlusion of a tubing system of a patient ventilator detects disconnection of the tubing system, opens the exhalation valve, delivers an idle flow of breathing gas to the tubing system, disables breath triggering, and generates an alarm. A reconnection of the tubing system can also be detected, to initiate resumption of pressure supported inspiration. For occlusion detection, the pressure drop in the tubing system is determined by pressure sensors in the inspiratory and expiratory airways of the tubing system. The two pressure drop values are compared, and once occlusion is detected, an alarm is generated, and the ventilator responds to protect the patient from over distension. Abatement of the occlusion can also be monitored in a pressure based occlusion status cycling mode, and the ventilator can revert back to normal ventilation when either circuit occlusion or exhaust port occlusion are not detected.

55 Claims, 2 Drawing Sheets

